

**Pollution Incident Response Management Plan**  
**Gullen Range Wind Farm**

NGRWF-P-002\_4

February 2019

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## Glossary

DPE	Department of Environment and Planning
EPA	NSW Environment Protection Agency
EPL	Environmental Protection Licence
ERP	Emergency Response Plan
GWA	Goldwind Australia Pty Ltd (GWA).
GRWF	Gullen Range Wind Farm
HSE	Health, safety and environment
Km	Kilometre
Kmph	Kilometres per hour
kV	Kilo-volt
m/s	Metres per second (wind speed)
NGRWF	New Gullen Range Wind Farm Pty Ltd
O&M	Operations and Maintenance
OEMP	Operational Environmental Management Plan
OMP	Operational Management Plan
PIRMP	Pollution Incident Response Management Plan
POEO Act	Protection of the Environment Operations Act 1997
POEO Regulation	Protection of the Environment Operations (General) Regulation 2009
Project Approval	Refers to the Gullen Range Wind Farm project approval (Application No. 07_0118).
Proponent	New Gullen Range Wind Farm Pty Ltd
SDS	Safety Data Sheet

## 1 Introduction

### 1.1 Purpose

The purpose of this Pollution Incident Response Management Plan (PIRMP) is to give effect to the requirements of the *Protection of the Environment Operations Act 1997* (POEO) and the *POEO Regulation 2009*.

## 1.2 Legislative Context

In 2012 changes to the POEO Act introduced a requirement for Environmental Protection Licence (EPL) holders to develop and implement a PIRMP for each of their licenced activities.

The requirements for a PIRMP is set out in:

- Part 5.7A of the POEO Act 1997.
- Part 3A of the POEO Regulation 2014.

In accordance with section 98B of the POEO Regulation this PIRMP is presented in written form. To fulfil the requirements of section 98D of the POEO Regulation, an up to date copy of this PIRMP will be made readily available both the project site (Site Office) and publicly on the Gullen Range Wind Farm (GRWF) website.

## 2 Project Background

### 2.1 Overview

The Gullen Range Wind Farm (GRWF) is a 73 wind turbine wind farm located on the Great Dividing Range in the Southern Tablelands of NSW. The 22km wind farm site is located approximately 6km west of the town on Crookwell (population approx. 2,500) and 30km north west of the regional city of Goulburn (population approx. 24,000). The wind farm became fully operational on the 23rd December 2014.

The wind farm is currently owned by New Gullen Range Wind Farm Pty Ltd Pty Ltd (NGRWF). NGRWF has subcontracted the initial 10 years of operation of the wind farm to Gold Wind Australia Pty Ltd (GWA).

Planning approval for the wind farm was granted by the NSW Land and Environment Court on the 4<sup>th</sup> of August 2010. A separate Environment Protection Licence (EPL) (number 20365) for the project was issued in 2014. The EPL has previously been updated on the 21<sup>st</sup> April 2015, 13<sup>th</sup> of November 2015 and the 26<sup>th</sup> February 2016 (respectively).

### 2.2 Onsite Infrastructure

GRWF consists of the following infrastructure:

- A quantity of 73 wind turbines made up of two different models. There are 56 Goldwind GW100-2.5MW turbines and 17 Goldwind GW82 1.5MW turbines.

- Turbines are located in four main groupings (listed north to south), being:
  - Kialla (2 turbines)
  - Bannister (30 turbines)
  - Pomeroy (23 turbines)
  - Gurrundah (18 turbines)

The layout of the turbines across the site is shown on the plans attached in Appendix 2.

- Access tracks connecting infrastructure and crane hardstands adjacent to turbine sites. Erosion and sediment control devices have been employed across the operational wind farm site. As the site is rehabilitated and surfaces are stabilised there is less need for erosion control, but devices are installed across the site including rock lined drains, flow controls, energy dissipaters, culverts and a detention pond adjacent the Site O&M Compound.
- A 33kV electrical system connecting all wind turbines with the substation. This system consists wholly of underground cabling, other than a section of overhead cable crossing a creek between the Gurrundah turbine group and southern boundary of the Pomeroy turbine group.
- A wind farm site operations and maintenance (O&M) compound (adjacent to substation within Pomeroy turbine group) including a site office, warehouse and storage areas.
- An onsite substation located at the northern end of the Pomeroy turbine group adjacent to the TransGrid grid connection facilities and O&M building. The substation layout contains two 33kV/330kV transformers as shown in Appendix 3.

Photos of GRWF infrastructure is captured in Appendix 1.

## 3 PIRMP Requirements

### 3.1 Description and Likelihood of Potential Onsite Hazards

#### 3.1.1 What is a Hazard

Hazards in the context of the Gullen Range Wind Farm (GRWF) are hazards that have the potential to:

- Cause harm to human health.
- Cause a pollution event affecting an offsite receptor or receiving environment.
- Cause actual or potential material harm to the environment.

In the context of this PIRMP the definition of 'material harm' is consistent with the definition provided in section 147 of the POEO Act.

Hazards may be associated with impacts on air quality, water quality, ecosystems or sensitive receptors (including neighbouring landholders).

Hazards relevant to the Gullen Range Wind Farm are identified in the following sections of this PIRMP. For completeness both the types of hazards on the wind farm and the locations where the hazards may occur are presented.

### 3.1.2 Types of Onsite Hazards

Types of onsite pollution hazards on the GRWF include the:

- Potential release of hazardous chemicals, including both fluid and aerosol-based chemicals.
- Potential dust emissions.
- Potential noise nuisance emissions from wind farm operation and maintenance.
- Potential release of contaminated site run-off to sensitive and / or offsite receptors.
- Potential release of non-biodegradable materials or substances as part of the operation and maintenance of the wind farm.
- Potential unintentional release of pest or weed species on to the wind farm site, including through imported parts and materials.

### 3.1.3 Locations with Potential Onsite Hazards

On the Gullen Range Wind Farm the following locations have the potential to present hazards to human health or to local ecosystems.

- **Wind turbines and kiosks**
  - The GW100-2.5MW wind turbine utilises two coolers located at the base of the turbine. The two coolers have a coolant capacity of 320 litres per cooler. There are 56 GW100-2.5MW wind turbines within the GRWF layout.
  - The kiosk transformers at all 73 turbines have an insulating oil capacity of 2,390 litres.
  - The kiosk switchgear at all 73 turbines have SF6 gas for arc suppression of the switchgear.
  - Potential pollution risks presented by wind turbines, kiosk transformers and switchgear include water or soil pollution, impacts to flora and fauna, impacts to human health during handling or clean-up activities, air and noise pollution.
- **Substation**
  - The GRWF substation includes two 33kV/330kV transformers with an insulating oil capacity of 46,000 litres per transformer.
  - The 330kV Main Circuit Breaker contains SF6 gas for arc suppression.
  - Potential pollution risks presented by the transformers and the main circuit breaker include water or soil pollution, impacts to flora and fauna, impacts to human health during handling or clean-up activities and air pollution.
  - The substation also has the potential to intermittently generate both noise and light pollution.
- **Substation Switch-room**
  - The GRWF substation switch-room includes one 33kV GIS Switch Bay with thirteen Siemens 8DA10 switchgear containing SF6 gas for arc suppression.

- Potential pollution risks presented by the switchgear impacts to human health during handling or clean-up activities and air pollution.
- **Site O&M compound hardstand (including waste management area)**
  - The GRWF site compound includes both a tar sealed area around the site office, warehouse and part of the substation, and a gravelled compound area around the switching room and the substation.
  - The site compound is broadly used for the storage of parts and equipment for the servicing and maintenance of the onsite wind turbines.
  - Potential pollution risks presented by the site compound hardstand area include contaminated run off from the carpark, storage areas (including the chemical storage area) and waste management area within the compound.
- **Onsite chemical storage**
  - Chemicals associated with the operation and maintenance of onsite turbines are stored at the GRWF site compound in the Pomeroy turbine group.
  - Chemicals include turbine coolant, aerosols (e.g. spray paint and spray lubricant), small volumes of herbicides, and hydrocarbon-based chemicals including grease and hydraulic oil.
  - Potential pollution risks presented by chemical storage include water or soil pollution, impacts to flora and fauna, impacts to human health during handling or clean-up activities, and air quality impacts for aerosol-based chemicals.
- **Onsite sewage management**
  - The GRWF site office sewage management facility consists of a 3000-litre septic tank and 45m<sup>2</sup> absorption bed area.
  - During longer duration maintenance activities portable toilets are provided for use by onsite service staff.
  - Potential risks presented by sewage management include water or soil pollution, impacts to flora and fauna, air quality impact, and impacts to human health during handling or clean-up activities.
- **Access tracks and hardstands**
  - There is approximately 44km of access tracks within the wind farm footprint.
  - There are 73 individual hardstand areas located adjacent to each of the onsite wind turbines.
  - Potential pollution risks presented by the onsite access tracks and hardstands include dust emissions and sediment release associated with the erosion of running tracks and batter slopes.
- **Weed infested areas**
  - The 22km long wind farm is located within actively utilised farming properties.
  - Potential pollution risks presented by the wind farm in these areas includes the unintentional release of weeds into previously uncontaminated area, and risks associated with the use of herbicides within the wind farm footprint to control weed outbreaks.

### 3.2 Incident Likelihood, Pre-emptive Actions and Hazard Prevention

The following risk assessment (Table 1) presents information capturing the likelihood of identified hazards occurring and arrangements (presented as controls and pre-emptive actions) minimising the risk of harm to any persons or premises present during the operation of the wind farm.

Risk ID	Risk Type:	Work Step or Facility:	Hazard:	Risks:	Rating: (pre-control)	Risk Controls and Pre-emptive Actions:	Risk Rating (post-control)
<b>Turbine Operations and Maintenance</b>							
1	Environmental	Kiosk (transformer and switchgear)	Vehicle collision causing structural failure.	Failure of containment resulting in the loss of large oil volume and/or release of SF6 gas and impact on the receiving environment. Potential soil, water, air contamination and impact to local flora and fauna. Risk to stock.	Medium	<ul style="list-style-type: none"> <li>Adopt low speeds when operating vehicles and mobile plant in the vicinity of the kiosk units.</li> <li>Bunding AS1940 compliant.</li> </ul>	Low
			Poor structural integrity resulting in unplanned release.	Failure of containment resulting in the loss of large oil volume and/or release of SF6 gas and impact on the receiving environment. Potential soil, water, air contamination and impact to local flora and fauna. Risk to stock.	Medium	<ul style="list-style-type: none"> <li>Use of structure that is internally banded.</li> <li>Utilisation of transformers that meet Australian Standards.</li> <li>Undertake visual and physical checks on the structure of the cooling units during the six monthly scheduled services.</li> <li>Bunding AS1940 compliant.</li> </ul>	Low
			Poor service and containment practices utilised during service.	Failure of containment resulting in the release of oil and/or release of SF6 gas and impact on the receiving environment. Potential soil, water, air contamination and impact to local flora and fauna. Risk to stock.	Medium	<ul style="list-style-type: none"> <li>The use of coolant that is fully biodegradable.</li> <li>Use experienced technicians for servicing work.</li> <li>Undertake scheduled maintenance in line with the maintenance schedule.</li> <li>Spill kit onsite at the worksite during servicing.</li> <li>Procedural controls developed and applied during draining and filling of transformer oil.</li> <li>Maximising transformer oil life as far as practicable to reduce the frequency of replacement.</li> <li>Bunding AS1940 compliant.</li> </ul>	Low
			Poor operational practice adopted for kiosk.	Event at the kiosk resulting in the release of oil and impact on the receiving environment. Potential for soil and water contamination and impact to local flora and fauna. Risk to stock. Risk of fire.	Medium	<ul style="list-style-type: none"> <li>Operate kiosk within the designed operating parameters. Prevent operation that may result in stress to the infrastructure.</li> <li>Remotely monitor performance of turbine.</li> <li>Undertake scheduled maintenance in accordance with prescribed maintenance schedule.</li> <li>Spill kits available to be deployed in the event of a release from kiosk.</li> <li>Bunding AS1940 compliant.</li> </ul>	Low
2	Environmental	Cooling units (GW100-2.5MW)	Vehicle collision causing structural failure.	Failure of containment resulting in the loss of large oil volume and impact on the receiving environment. Potential soil and water contamination and impact to local flora and fauna. Risk to stock.	Medium	<ul style="list-style-type: none"> <li>The use of coolant that is fully biodegradable.</li> <li>Adopt low speeds when operating vehicles and mobile plant in the vicinity of the cooling units.</li> <li>Bunding AS1940 compliant.</li> </ul>	Low
			Poor structural integrity resulting in unplanned release.	Failure of containment resulting in the release of a large volume of coolant and impact on the receiving environment. Potential soil and water contamination and impact to local flora and fauna. Risk to stock.	Low	<ul style="list-style-type: none"> <li>The use of coolant that is fully biodegradable.</li> <li>Use of structure that is internally banded.</li> <li>Utilisation of units that meet Australian Standards.</li> <li>Undertake visual and physical checks on the structure of the cooling units during the six monthly scheduled services.</li> <li>Bunding AS1940 compliant.</li> </ul>	Low

2 continued	Environmental	Cooling units (GW100-2.5MW)	Poor service and containment practices utilised during service.	Failure of containment resulting in the release of coolant and impact on the receiving environment. Potential soil and water contamination and impact to local flora and fauna. Risk to stock.	Medium	<ul style="list-style-type: none"> <li>The use of coolant that is fully biodegradable.</li> <li>Use experienced technicians for servicing work.</li> <li>Spill kit onsite during servicing.</li> <li>Undertake scheduled maintenance in line with the maintenance schedule.</li> <li>Bunding AS 1940 compliant.</li> </ul>	Low
			Poor handling during draining or filling of coolant in to cooling units.	Unintentional release of coolant due to poor hose connections, pump failure or over topping of cooling unit capacity.	High	<ul style="list-style-type: none"> <li>The use of coolant that is fully biodegradable. If released the coolant breaks down with no residual impact to the environment.</li> <li>Use of equipment fit for purpose.</li> <li>Undertake checks of all seals, hoses and pump fittings prior to commencing draining or refilling of coolant reservoirs.</li> <li>Procedural controls developed and applied during draining and filling of coolant.</li> <li>Maximising coolant life as far as practicable to reduce the frequency of replacement.</li> </ul>	Low
			Poor operational practice adopted for cooling unit.	Event at the cooling unit resulting in the release of coolant and impact on the receiving environment. Potential for soil and water contamination and impact to local flora and fauna. Risk to stock.	Medium	<ul style="list-style-type: none"> <li>Operate cooling unit within the designed operating parameters. Prevent operation that may result in stress to the infrastructure.</li> <li>Remotely monitor performance of turbine.</li> <li>Undertake scheduled maintenance in accordance with prescribed maintenance schedule.</li> <li>Spill kits available to be deployed in the event of a release from kiosk.</li> <li>Bunding AS1940 compliant.</li> </ul>	Low
3	Environmental / Human Health	Operation of turbines	Noise nuisance from blade movement.	Release of noise emissions at levels that cause disturbance to sensitive receptors outside of the wind farm boundary.	Medium	<ul style="list-style-type: none"> <li>Operate turbines in accordance within the operating noise limits prescribed in the project approval.</li> <li>Undertake regular maintenance on onsite turbines and supporting infrastructure.</li> <li>Investigate all noise complaints in accordance with the complaints management procedure.</li> </ul>	Low
		Operation of turbines	Noise nuisance from mechanical noises generated from turbines.	Release of noise emissions at levels that cause disturbance to sensitive receptors outside of the wind farm boundary.	Medium	<ul style="list-style-type: none"> <li>Operate turbines in accordance within the operating noise limits prescribed in the project approval.</li> <li>Operating turbines within specified manufacturers operating limits.</li> <li>Undertake regular maintenance on onsite turbines and wind farm infrastructure.</li> <li>Investigate all noise complaints in accordance with the complaints management procedure.</li> </ul>	Low
4	Environmental	Maintenance of turbines	Packaging for turbine parts and equipment.	Release of packing materials due to poor housekeeping. Potential risk to local flora and fauna. Risk to stock.	Medium	<ul style="list-style-type: none"> <li>Adopt good housekeeping practices.</li> <li>Timely removal of packing materials from site subsequent to works.</li> <li>Management of waste in accordance with the OEMP and best practice waste management.</li> </ul>	Low

Substation:							
5	Environmental	Large transformers	Vehicle collision causing structural failure.	Failure of containment resulting in the loss of large oil volume and impact on the receiving environment. Potential soil and water contamination and impact to local flora and fauna. Risk to stock.	High	<ul style="list-style-type: none"> <li>Transformers located within substantive concrete bunds with edges precluding vehicle access.</li> <li>Substation itself is located inside a locked security fence. Access to the substation is restricted.</li> <li>Bunding AS1940 compliant.</li> </ul>	Low
			Poor structural integrity resulting in unplanned release.	Failure of containment resulting in the loss of large oil volume and impact on the receiving environment. Potential soil and water contamination and impact to local flora and fauna. Risk to stock.	High	<ul style="list-style-type: none"> <li>Utilisation of a bund around the two transformers.</li> <li>Utilisation of transformers that meet Australian Standards.</li> <li>Undertake visual and physical checks on the transformers during servicing.</li> <li>Bunding AS1940 compliant.</li> </ul>	Medium
			Poor operational practice adopted for transformer.	Event at the cooling unit resulting in the release of coolant and impact on the receiving environment. Potential for soil and water contamination and impact to local flora and fauna. Risk to stock.	High	<ul style="list-style-type: none"> <li>Operate transformers within the designed operating parameters. Prevent operation that may result in stress to the infrastructure.</li> <li>Remotely monitor performance of turbine.</li> <li>Undertake scheduled maintenance in accordance with prescribed maintenance schedule.</li> <li>Spill kits available to be deployed in the event of a release from kiosk.</li> <li>Bunding AS1940 compliant.</li> </ul>	Low
6	Environmental	Large transformer servicing	Poor service and containment practices utilised during service.	Failure of containment resulting in the release of oil and impact on the receiving environment. Potential soil and water contamination and impact to local flora and fauna. Risk to stock.	Medium	<ul style="list-style-type: none"> <li>Use experienced technicians for servicing work.</li> <li>Undertake scheduled maintenance in line with the maintenance schedule.</li> <li>Spill kit onsite during servicing.</li> <li>Maximising transformer oil life as far as practicable to reduce the frequency of replacement.</li> <li>Procedural controls developed and applied during draining and filling of transformer oil.</li> </ul>	Low
7	Environmental	Oil – water separators	Ineffective operation.	Release of oil discharge and impact on the receiving environment. Potential soil and water contamination and impact to local flora and fauna. Risk to stock.	Medium	<ul style="list-style-type: none"> <li>Use experienced technicians for servicing work.</li> <li>Undertake regular inspections, maintenance and clearing.</li> <li>Ensure response procedures in place in the event the separator fails.</li> <li>Bunding AS1940 compliant.</li> </ul>	Low
8	Environmental	330kV Main Circuit Breaker	Poor structural integrity resulting in unplanned release.	Failure of containment resulting in the release of SF6 gas and impact on the receiving environment.	Medium	<ul style="list-style-type: none"> <li>Undertake visual checks of the structure during the six monthly scheduled services.</li> </ul>	Low
			Poor service and containment practices utilised during service.	Failure of containment resulting in the release of SF6 gas and impact on the receiving environment.	Medium	<ul style="list-style-type: none"> <li>Use experienced technicians for servicing work.</li> <li>Undertake scheduled maintenance in line with the maintenance schedule.</li> </ul>	Low

Substation Switch-room:							
9	Environmental	33kV GIS Switch Bay	Poor structural integrity resulting in unplanned release.	Failure of containment resulting in the release of SF6 gas and impact on the receiving environment.	Medium	<ul style="list-style-type: none"> <li>Undertake visual checks of the structure during the six monthly scheduled services.</li> </ul>	Low
			Poor service and containment practices utilised during service.	Failure of containment resulting in the release of SF6 gas and impact on the receiving environment.	Medium	<ul style="list-style-type: none"> <li>Use experienced technicians for servicing work.</li> <li>Undertake scheduled maintenance in line with the maintenance schedule.</li> </ul>	Low
Site O&M Compound (including chemical storage, waste management and site office):							
10	Environmental	Storage of waste oil and chemicals	Unplanned release during delivery and / or unloading process.	Unplanned release of chemicals and impact on the receiving environment. Potential soil and water contamination and impact to local flora and fauna. Risk to stock.	Medium	<ul style="list-style-type: none"> <li>Deliveries to be offloaded by trained onsite personnel.</li> <li>Where mobile plant is utilised (e.g. forklift) the mobile plant to be operated only by trained operators.</li> </ul>	Low
			Storage vessel structural failure.	Unplanned release of chemicals and impact on the receiving environment. Potential soil and water contamination and impact to local flora and fauna. Risk to stock.	Medium	<ul style="list-style-type: none"> <li>Minimise onsite storage of chemicals.</li> <li>Timely removal of waste oil.</li> <li>Storage in bunded areas.</li> <li>Storage of chemicals in the original bottle or in an appropriate alternate suitable for the storage of oil.</li> <li>Storage of waste oil in leak proof containers.</li> <li>Bunding AS1940 compliant.</li> <li>Regular inspections</li> </ul>	Low
			Unplanned release during collection and / or loading process, including during distribution to service work areas on wind farm.	Unplanned release of chemicals and impact on the receiving environment. Potential soil and water contamination and impact to local flora and fauna. Risk to stock.	Low	<ul style="list-style-type: none"> <li>Collections to be loaded by trained operators.</li> <li>Where mobile plant is utilised (e.g. forklift) the mobile plant to be operated only by trained operators.</li> <li>Distribute chemicals around the wind farm on equipment that is mechanically sound (e.g. road worthy trailer).</li> <li>Bunding AS1940 compliant.</li> </ul>	Low
	Human Health	Storage of chemicals	Chemical reaction.	Reaction causes the release of a potentially hazardous gas by-product causing risk to human health.	Medium	<ul style="list-style-type: none"> <li>Minimise onsite storage of chemicals.</li> <li>Avoid storage of hazardous chemicals onsite.</li> <li>Storage in accordance with SDS specifications.</li> </ul>	Low
11	Environmental	Turbine coolant storage	Storage vessel structural failure.	Unplanned release of coolant. Potential soil and water contamination and impact to local flora and fauna. Risk to stock.	Low	<ul style="list-style-type: none"> <li>Minimise onsite storage of coolant.</li> <li>Storage on AS1940 compliant bunds.</li> <li>Storage of coolant in the original container or an appropriate alternate suitable for the storage of oil.</li> <li>Regular inspections</li> </ul>	Low
			Vehicle collision causing structural failure.	Unplanned release of coolant. Potential soil and water contamination and impact to local flora and fauna. Risk to stock.	Low	<ul style="list-style-type: none"> <li>Adopt low speeds when operating vehicles and mobile plant in the vicinity of stored coolant.</li> <li>Locate stored coolant away from areas subject to frequent vehicle activity.</li> <li>Use of barricades where required.</li> </ul>	Low

12	Environment	Hardstand areas within compound	Rainfall event causing runoff.	Release of contaminated runoff (e.g. as a result of oil, hydrocarbon releases within carparking area). Potential soil and water contamination. Potential impact to local flora and fauna.	Medium	<ul style="list-style-type: none"> <li>• Good housekeeping, including the timely clean-up of accidental releases within the site compound.</li> <li>• Ensure all onsite vehicles are kept in good mechanical condition.</li> </ul>	
13	Environment	Waste management area	Poor waste management practice.	Release of contaminants and non-biodegradable material from the waste management area. Potential soil and water contamination. Potential impact to local flora and fauna.	Low	<ul style="list-style-type: none"> <li>• Adopt good housekeeping practices.</li> <li>• Storage inside security fence to avoid wind-blown distribution of waste.</li> <li>• Timely removal of waste from site.</li> <li>• Management of waste in accordance with the OEMP and best practice waste management.</li> </ul>	Low
	Environment	Waste management area	Inappropriate disposal of waste.	Release of contaminants or pollutants. Fines, penalties.	Low	<ul style="list-style-type: none"> <li>• Adopt good housekeeping practices.</li> <li>• Storage inside security fence to avoid wind-blown distribution of waste.</li> <li>• Timely removal of waste from site.</li> <li>• Management of waste in accordance with the OEMP and best practice waste management.</li> </ul>	Low
<b>Sewage Management</b>							
14	Environment	Onsite sewage management facility	Pipework failure.	Release of raw or partially treated effluent. Potential soil and water contamination. Potential soil and water contamination and impact to local flora and fauna. Potential release of odour nuisance associated with the release. Risk to stock.	Medium	<ul style="list-style-type: none"> <li>• Undertake checks of the system in accordance with manufacturers specifications.</li> <li>• Operate system within prescribed operating parameters.</li> <li>• Visual monitoring of performance of sewage system.</li> <li>• Timely response to any indicators that the sewage system is not operating correctly, e.g. odour.</li> </ul>	Low
	Human Health	Onsite sewage management facility	Pipework failure.	Release of raw or partially treated effluent. Potential human health impact as a result of unintentional contact during investigation and clean-up activities. Risk to stock.	Medium	<ul style="list-style-type: none"> <li>• Undertake checks of the system in accordance with manufacturers specifications.</li> <li>• Operate system within prescribed operating parameters.</li> <li>• Visual monitoring of performance of sewage system.</li> <li>• Timely response to any indicators that the sewage system is not operating correctly, e.g. odour.</li> </ul>	Low
<b>Access Tracks and Hardstands</b>							
15	Environmental	Access tracks and hardstands	Vehicle movements	Create of dust emissions. Potential human health impact and / or impact on offsite sensitive receptor.	Medium	<ul style="list-style-type: none"> <li>• Adherence to onsite speed limits (40kmph, 20kmph where signposted).</li> <li>• Reduction of speed on dry days.</li> <li>• Utilisation of water tankers for dust suppression if required.</li> <li>• Maintain site roads in good state of repair.</li> </ul>	Low
			Heavy rainfall events	Erosion and release of sediment to the local receiving environment, including agricultural dams. Potential for offsite impacts.	Medium	<ul style="list-style-type: none"> <li>• Maintenance of access roads and onsite erosion and sediment controls.</li> <li>• Visual monitoring across the site. Timely repairs undertaken where required.</li> </ul>	Low

16	Environmental	Access track or hardstand maintenance	Heavy rainfall events	Erosion of disturbed access track or hardstand surfaces. Potential release of sediment to the local receiving environment, including agricultural dams. Potential for offsite impacts.	Medium	<ul style="list-style-type: none"> <li>Avoid maintenance activities during the 'wet conditions'.</li> <li>Undertake maintenance in a timely manner.</li> <li>Apply temporary controls to protect disturbed surfaces where required.</li> </ul>	Low
			Poorly maintained access tracks or handstands	Erosion of disturbed access track or hardstand surfaces. Potential release of sediment to the local receiving environment, including agricultural dams. Potential for offsite impacts.	Medium	<ul style="list-style-type: none"> <li>Undertake maintenance in a timely manner.</li> <li>Visual monitoring across the site. Timely repairs undertaken where required.</li> </ul>	Low
<b>Weed Management</b>							
17	Environment	Storage of herbicides	Inappropriate storage	Uncontrolled release of herbicide resulting. Potential soil and water contamination and impact to local flora and fauna. Risk to stock.	Low	<ul style="list-style-type: none"> <li>Low volume storage of herbicides.</li> <li>Storage in bunded areas.</li> <li>Storage of herbicides in the original bottle or in an appropriate alternate suitable for the storage of herbicide.</li> <li>Storage in accordance with SDS specifications.</li> </ul>	Low
		Use of herbicides	Inappropriate use	Impact to non-target plant species. Impact on groundcover resulting increased erosion risk. Potential soil and water contamination. Risk to stock.	Medium	<ul style="list-style-type: none"> <li>Application to be undertaken by appropriately trained people.</li> <li>Herbicide to be selected to limit impact on non-target species.</li> </ul>	Low
	Human Health	Storage of herbicides	Chemical reaction	Reaction causes the release of a potentially hazardous gas by-product causing risk to human health.	Low	<ul style="list-style-type: none"> <li>Low volume storage of herbicides.</li> <li>Storage in accordance with SDS specifications.</li> </ul>	Low
	Environment / Human Health	Use of herbicides.	Inappropriate use.	Uncontrolled release of herbicides and impact to offsite persons and property.	Low	<ul style="list-style-type: none"> <li>Application to be undertaken by appropriately trained people.</li> <li>Application to be undertaken during periods that would minimise the potential for spray drift.</li> </ul>	Low
	Environment	Onsite access	Use of a vehicle or material (e.g. straw) containing viable plant reproductive material.	Release of weed species in to previously uncontaminated areas within the wind farm resulting in impacts to the local environment and local agricultural businesses.	Medium	<ul style="list-style-type: none"> <li>Due care to be taken to acquire material that is certified weed clean or is sourced from a location to be known to be weed clean.</li> <li>Minimise contact between contaminated material and / or vehicles and natural surfaces where introduced species can establish.</li> </ul>	Low

**Risk Assessment Matrix**

		Consequence					
		Environment	Minor pollution/damage no long term effects	Moderate Pollution or Damage Possible	Major/Serious Pollution or Damage Possible	Death of plants/wildlife/environmental items	
		People	Minor injury or First Aid Treatment Case.	Serious injury causing hospitalisation or multiple medical treatment cases.	Life threatening injury or multiple serious injuries causing hospitalisation.	Death or multiple life threatening injuries.	
			Insignificant (I)	Minor (MIN)	Moderate (MOD)	Major (MAJ)	Catastrophic (CAT)
Likelihood	Is expected to occur in most circumstances	<b>Very Likely (VL)</b>	M	H	H	E	E
	Will probably occur	<b>Likely (L)</b>	M	M	H	H	E
	Might occur at some time in the future	<b>Possible (P)</b>	L	M	M	H	H
	Could occur but doubtful	<b>Unlikely (UL)</b>	L	L	M	M	H
	May occur but only in exceptional circumstances	<b>Very Unlikely (VU)</b>	L	L	L	M	M

Work only to proceed under the following guidelines.	
Risk Tolerability	
<b>EXTREME Unacceptable</b>	<b>Do not start activity.</b> Detailed research and planning required for Department Manager approval.
<b>HIGH Undesirable</b>	<b>Do not start activity – Notify Department Manager of supervision in place.</b> Manager/Supervisor must confirm that existing procedures and control measures are up to date and actionable by all workers.
<b>MODERATE Tolerable</b>	<b>Managed locally.</b> Manager/Supervisor must confirm that existing procedures and control measures are suitable up to date and actionable by all workers.
<b>LOW Acceptable</b>	<b>Use Caution – Proceed direct with activity using procedures and control measures.</b>

### 3.4 Onsite Pollutants

Potential pollutants that may be present on the operational wind farm site are listed Table 2 together with the storage locations and the quantity of the pollutant. More details on these pollutants are included in the site SDS register available in the GRWF Site Office.

**Table 2: Table of Potential Pollutants on GRWF**

Item:	Location:	Indicative Use:	Volume Stored:	Responsible:
Insulating oil	Substation	Insulation for onsite transformer	46,000 litres per transformer	Service Team
	Turbine sites	Insulation for transformer located in turbine kiosk	2,390 litres per kiosk	Service Team
	Site O&M compound	Replacement oil (temporary storage)	400 litres	Service Team
SF6 gas	330kV Circuit Breaker	Arc suppression in switchgear	-	Service Team
	33kV GIS Switch Bay	Arc suppression in switchgear	-	Service Team
	Turbine Kiosks	Arc suppression in switchgear	3.5kg per kiosk	Service Team
Hydraulic oil	Substation	-	Nil	-
	Turbine sites	-	Minor	Service Team
	Site O&M compound	Replacement oil (temporary storage)	Minor	Service Team
Lubricating Oil	Substation	-	Nil	-
	Turbine sites	Lubrication of moving parts	Minor	Service Team
	Site O&M compound	Replacement oil (temporary storage)	Minor	Service Team
Waste oil	Substation	-	Minor	Service Team
	Turbine sites	-	Occasional	Service Team
	Site O&M compound	-	Occasional	Service Team
Oily and greasy rags	Substation	-	Nil	-
	Turbine sites	Utilised during maintenance works	Occasional	Service Team
	Site O&M compound	Temporary storage ahead of waste removal	Occasional	Service Team
Coolant	Substation	-	Nil	-
	Turbine sites	For cooling in the GW100-2.5MW wind turbine.	3,200 L x 56	Service Team

	Site O&M compound	Temporary storage ahead of onsite use.	5,000 litres	Service Team
Fuel (Diesel)	Substation	-	Nil	-
	Turbine sites	-	Nil	-
	Site O&M compound	-	Nil	-
Cleaning Agents	Substation	-	Nil	-
	Turbine sites	Occasional cleaning within turbine structure.	Low	Service Team Contractor
	Site O&M compound	Cleaning within site office and warehouse area.	Low	Service Team Contractor
Solvents	Substation	Occasional use.	Low	Service Team
	Turbine sites	Occasional use.	Low	Service Team
	Site O&M compound	Temporary storage ahead of onsite use.	Low	Service Team
Paints	Substation	-	Nil	-
	Turbine sites	Occasional use.	Low	Service Team
	Site O&M compound	Occasional use.	Low	Service Team
Herbicides	Substation	-	Nil	-
	Turbine sites	Periodic use for treatment on hardstand area around turbine infrastructure.	Negligible	Service Team Contractor
	Site O&M compound	Small quantities stored at O&M Compound.	Low	Service Team Contractor
Sewage Effluent	Substation	-	Nil	Service Team
	Turbine sites	-	Nil	Service Team
	Site O&M compound	Storage wholly in the sewage treatment facility.	Nil	Service Team

### 3.5 Safety

Safety equipment and devices available to minimise the risk to human health or the environment include:

**Table 3: Onsite Safety Equipment and Devices**

Equipment:	Location:	Service Requirement:
Fire extinguishers	Wind turbines (x2 per turbine)	Six monthly
	Site Office (O&M compound)	Six monthly

	Warehouse (O&M compound)	Six monthly
	Switch-room (substation)	Six monthly
	Vehicles	Six monthly
Fire blanket	Site Office (O&M compound)	Six monthly
Fire fighting equipment (portable tank and pump)	Stored at O&M compound	Periodic inspection
PPE e.g. boots, hard hats, safety glasses, respiratory masks	Issued per employee Utilised on a task risk basis	Equipment specific
Bunding	Chemical storage area (O&M compound)	Periodic inspection
Portable spill kits	Warehouse (O&M compound)	Periodic inspection

### 3.6 Contacts

#### 3.6.1 Onsite and Company Contacts

**Table 4: Onsite and Company Contacts**

Person:	Position:	Phone:	Mobile:
<b>General</b>			
Wind Farm Enquiry Line (not for emergencies)	N/A	1800 509 711	N/A
<b>GWA Onsite Service Team</b>			
Jodie Marr	Site Manager / Emergency Controller	N/A	0427 924 039
Michelle Treble	Service Administrator	N/A	0417 561 526
<b>GWA Office Service Team</b>			
Rob Brady	General Manager - Service	(03) 9912 7810	0488 181 111
Travers Willson	Services Manager	(03) 9912 7825	0407 525 630
Kylie Hampel	Senior HSEQ Advisor – Service	(03) 9912 7813	0400 580 360
<b>NGRWF</b>			
Derek Powell	Project Director	(02) 9247 1943	0429 347 524
Simon Zhao	Owners Representative	N/A	0437 510 319
Leo Pearce	Asset Manager	N/A	0428 288 737

### 3.6.2 Regulatory Contacts

**Table 5: Regulatory Contacts**

<b>Agency:</b>	<b>Type / Notes:</b>	<b>Phone:</b>
EPA	Environment, pollution	13 15 15
Upper Lachlan Shire	Local Government	(02) 4830 1000
Goulburn Mulwaree Council	Local Government	(02) 4823 4444
Local Land Services (LLS) (South-Eastern Region)	Formerly Catchment Management Authority	TBA
NSW Department of Planning and Environment	-	1300 305 695
NSW Ministry of Health	-	(02) 9391 9000
Sydney Catchment Authority (Water NSW emergency reporting)	Drinking water quality	1800 061 069
State Emergency Services	Emergency assistance	13 25 00
Rural Fire Service (Crookwell)	Bushfire	(02) 4832 0268
Fire	Emergencies only (fire)	000
Ambulance	Emergencies only (medical)	000
Police	Emergencies only	000

## 3.7 Incident Response

### 3.7.1 Minimising Harm to Human Health

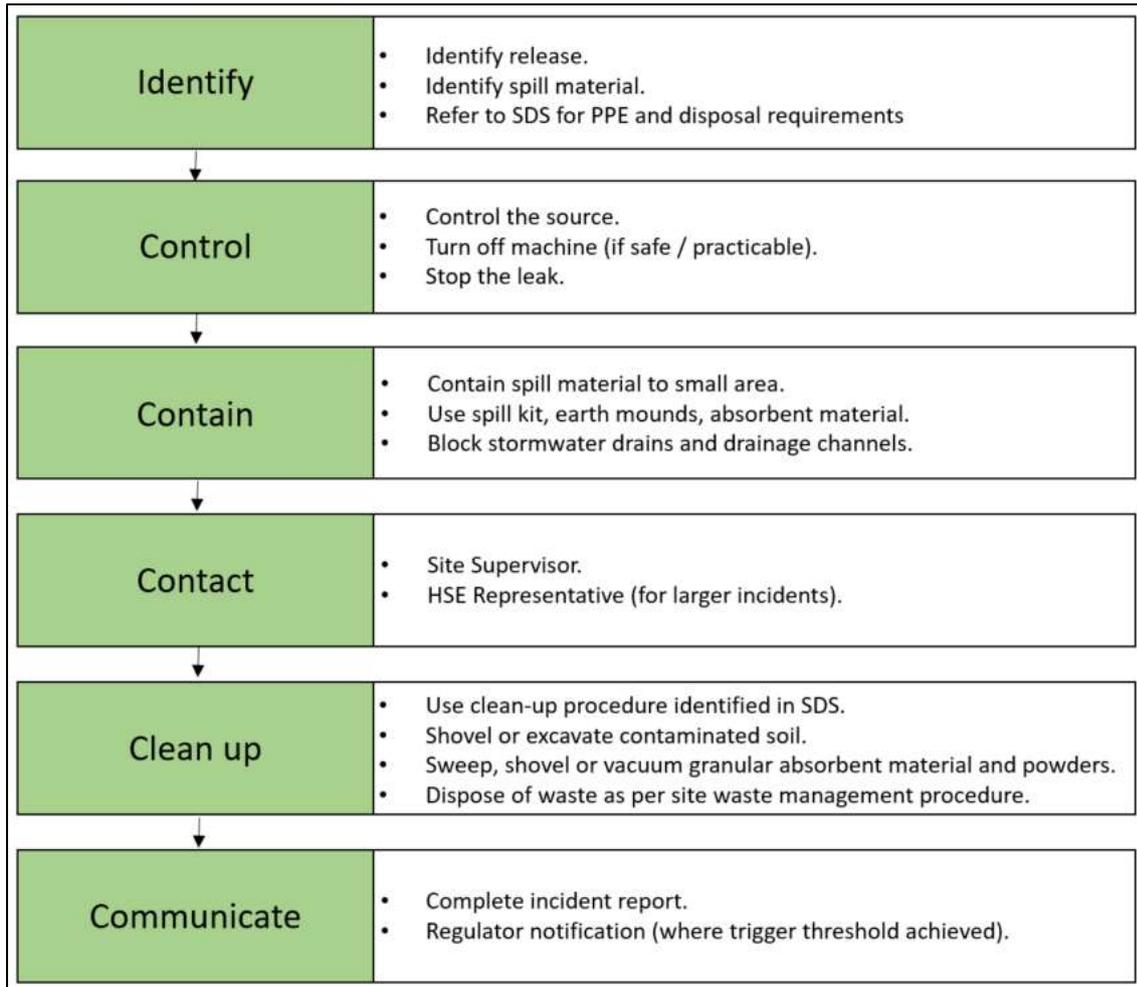
Harm to human health will be reduced utilising methods including:

- Provision of training in accordance with this PIRMP and the ERP for the project.
- Provision of hazard identification and risk control support during the operation of the wind farm, including the provision of equipment and materials necessary to reduce the identified risk.
- Provision of safety management training in accordance with the company specific safety management systems and in accordance with the Operational Management Plan (OMP) for the project.
- Ensuring that project personnel are aware of their duties under the Work Health and Safety Act 2011 with respect to their own safety and the safety of other project personnel.
- Ensure appropriately trained people are used where chemical handling is required, e.g. the use of herbicides for weed control on the project.
- Provision of Personal Protective Equipment (PPE) suited to the individual worker and the role they undertake on the project site.
- Provision of designated muster points.

- Provision of defined procedures, e.g. the provision of Safe Work Method Statements (SWMS) or Environmental Work Method Statements (EWMS), where a risk to human health is present.
- Creating a safe environment for the clean-up of the release of a pollutant to avoid the occurrence of a secondary incident during the rectification of the initial incident.

### 3.7.2 Incident Response

The following Spill Response Procedure provides an overview of the response requirement in the event of a liquid release onsite:



**Figure 1: GRWF Spill Response Procedure**

The measures to respond to a pollution incident are outlined within the ERP for the GRWF. The ERP is utilised as a central point of truth for incident response on the project. Key actions outlined within the ERP include:

- Limiting the extent of the incident, e.g. through the containment or elimination of the source of the incident.
- Raising the alarm in the event of an incident.
- Managing the incident, including the identification of external resources required to respond to the incident.

- The subsequent investigation in the cause of the incident.
- As necessary, the procedures to avoid reoccurrence.
- Regulatory notification obligations.

For incidents that do not present an immediate physical risk to human health or the environment, e.g. a noise complaint, the response will be in accordance with the GRWF complaints management procedure or other relevant document outlining a defined response process.

### 3.8 Owner / Occupier Notification

In the event of a pollution incident GWA as the onsite maintenance contractor will undertake an assessment of the event and identify any requirement to provide notification to neighbouring residents and landholders (both involved in uninformed landholders). Notification will be led by the GWA Site Manager (or delegate). In the first instance, positive phone contact will attempt to be made with the resident or landholder. Where phone contact cannot be made the Site Manager will determine if a different method of notification is required.

NGRWF will assume responsibility for conducting wider communication with the community (where deemed necessary), through phone calls, house visits, newsletters, newspaper advertisements and updates to the wind farm website.

### 3.9 Mapping

Detailed maps of the layout of the wind farm are included in Appendix 2. The location of potential pollutants is as identified and described within Section 3.4 of this PIRMP. Noise contour information is available in the Operational Noise Management Plan which forms Appendix K of the OEMP for the GRWF project.

### 3.10 Staff Training

Training on the GRWF project site relevant to this PIRMP includes:

- Site induction training.
- Emergency response training (provided in accordance with the site ERP).
- Spill response training.

Site inductions are valid for a period of up to two years. Inductions are provided by way of a refresher delivered every two years or where changes are made to the induction. Records of all site inductions are retained within the GWA HSE system.

Site inductions have been developed to include information from this PIRMP, including:

- Details of hazards and controls.
- Incident response information.
- Duty to report environmental harm.

The objectives of training provided on this PIRMP are the:

- Provision of information to prevent the occurrence of a pollution event causing material harm.
- Provision of guidance on how to respond to a pollution event, including notification requirements.
- Provision of post-incident responsibilities.

### 3.11 Testing and Maintenance of the PIRMP

#### 3.11.1 Testing of the PIRMP

In accordance with section 98E of the POEO Regulation, this PIRMP will be subject to testing that ensures that information included within the plan is accurate, up to date and is capable of being implemented in a workable and effective manner.

As required by section 98E testing of the PIRMP will be undertaken on the following basis:

- Routinely at least once every 12 months.
- Within one month of any pollution incident to which the EPL for the wind farm relates.

The 12-month testing will be undertaken indicatively in January on an annual basis (unless otherwise revised during the preceding 12 months).

The testing history for the PIRMP is described in the version control at the start of this PIRMP.

#### 3.11.2 Manner of Testing and Maintenance

The PIRMP maintenance and testing of the PIRMP is undertaken jointly by both NGRWF (as owner) and GWA (as service contractor).

### 3.12 Trackable Waste Transport

Section 98C(2) of the POEO Regulation prescribes a requirement for information pertaining to trackable waste to be included within a PIRMP to the extent that the licence authorises the transport of trackable waste.

The only waste generated on the operational wind farm site is waste oil and materials that may have been contaminated with oil. The management of this waste is managed on a case by case basis in consultation with an appropriately licenced waste contractor and in accordance with the requirements prescribed within the project approval and the OEMP.

Appendix 1



**Figure 2:** Lower portion of a GW100 2.5MW turbine.



**Figure 3:** Example of a GW82 1.5MW turbine.



**Figure 4:** Onsite chemical storage container at Site O&M Compound.



**Figure 5:** Onsite waste management area at Site O&M Compound



**Figure 6:** 33kV / 330kV substation including the two banded transformers.



**Figure 7:** Oil / water separator within bund of Transformer 2.

Appendix 2



**Figure 8:** Site layout for the Kialla and Bannister turbine groups.

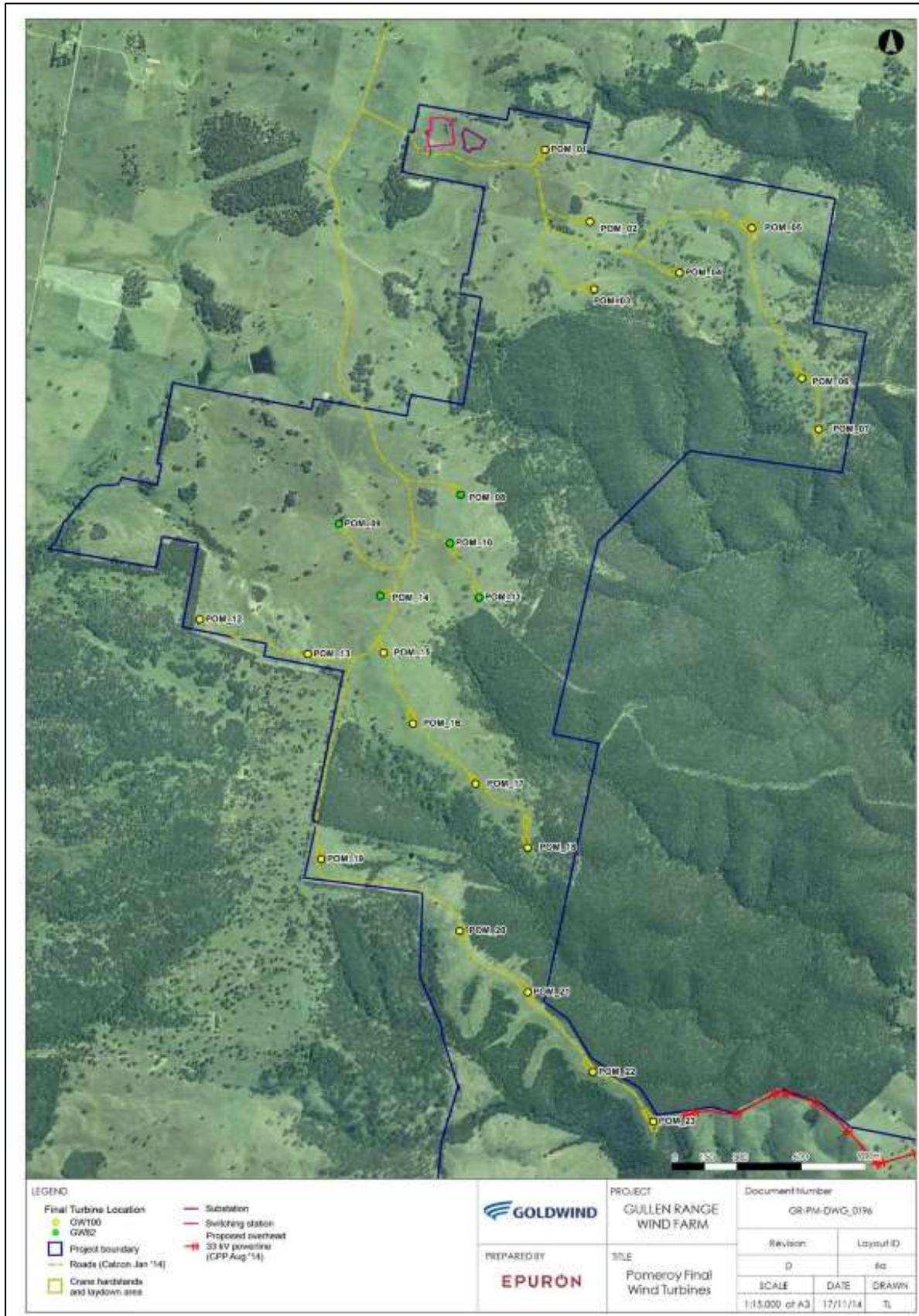


Figure 9: Site layout for the Pomeroy turbine groups.

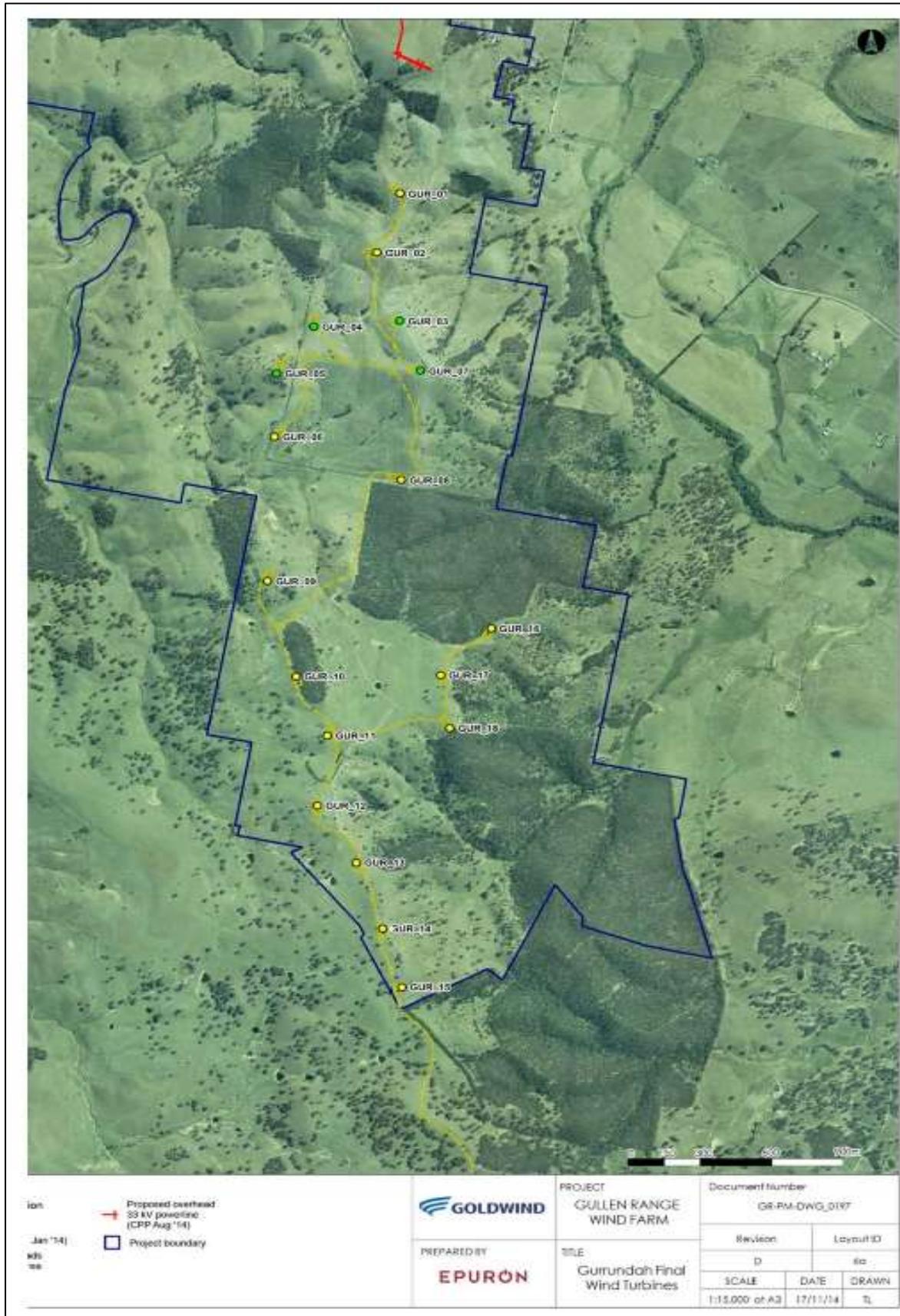


Figure 10: Site layout for the Gurrundah turbine groups.

Appendix 3

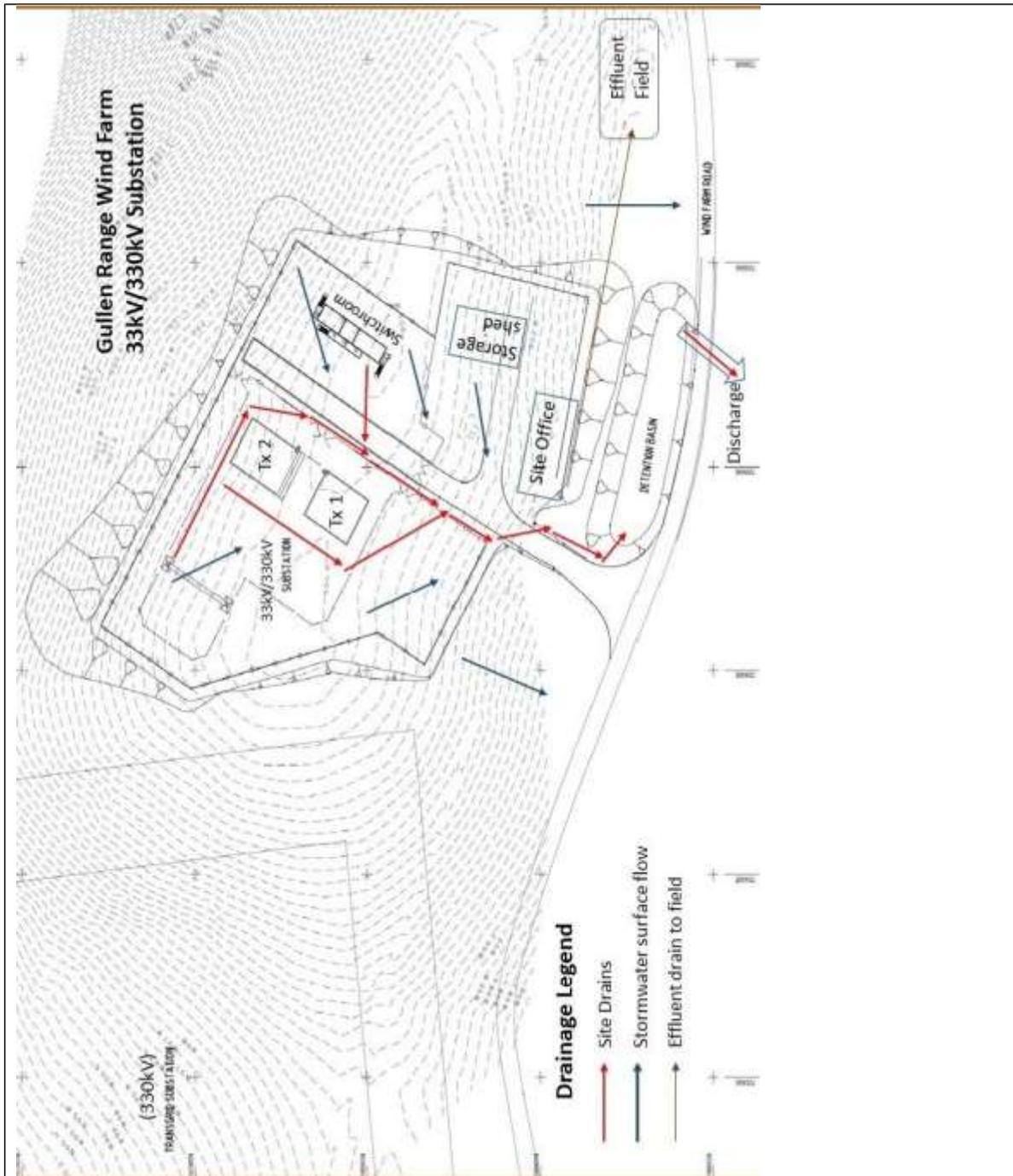


Figure 11: Gullen Range Wind Farm substation layout.

